

0073491

W05178

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Analytical Data Package Prepared For

Fluor Hanford Inc.

Radiochemical Analysis By

STL Richland

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: STLRL

Data Package Contains _____ Pages

Report No.: 35493

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
W05178	R07-010	B1NHK1	J7E180260-1	JW9RA1AA	9JW9RA10	7138456
		B1NHK2	J7E180260-2	JW9RT1AA	9JW9RT10	7138456
		B1NHK3	J7E180260-3	JW9RW1AA	9JW9RW10	7138456
		B1NHK4	J7E180260-4	JW9RX1AA	9JW9RX10	7138456
		B1NHK5	J7E180260-5	JW9R21AA	9JW9R210	7138456
		B1NHK6	J7E180260-6	JW9R61AA	9JW9R610	7138456
		B1NHL1	J7E180260-7	JW9R71AA	9JW9R710	7138456
		B1NHL2	J7E180260-8	JW9R91AA	9JW9R910	7138456

**STL**

STL Richland
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Certificate of Analysis

Fluor Hanford
P.O. Box 1000, T6-03
Richland, WA 99352

June 1, 2007

Attention: John Trechter

SAF Number	:	R07-010
Date SDG Closed	:	May 18, 2007
Number of Samples	:	Eight (8)
Sample Type	:	Soil
SDG Number	:	W05178
Data Deliverable	:	15/15 Day

CASE NARRATIVE

I. Introduction

On May 18, 2007 eight samples were received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the samples were assigned to lot J7E180260 and assigned the following laboratory ID number to correspond with the Fluor Hanford (FH) specific ID:

<u>FH ID#</u>	<u>STLR ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
B1NHK1	JW9RA	SOIL	5/18/07
B1NHK2	JW9RT	SOIL	5/18/07
B1NHK3	JW9RW	SOIL	5/18/07
B1NHK4	JW9RX	SOIL	5/18/07
B1NHK5	JW9R2	SOIL	5/18/07
B1NHK6	JW9R6	SOIL	5/18/07
B1NHL1	JW9R7	SOIL	5/18/07
B1NHL2	JW9R9	SOIL	5/18/07

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

June 1, 2007

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

Liquid Scintillation Counting
Nickle 63 by LCS

IV. Quality Control

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

V. Comments

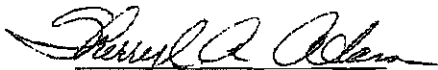
Liquid Scintillation Counting

Nickle 63 by LCS:

The LCS, batch blank, samples and sample duplicate were all within acceptance limits.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:



Sherryl A. Adam
Project Manager

Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	STL Richland's SOP number
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-241 (unless otherwise specified in the case narrative)		
The Gross Beta LCS is prepared with Sr/Y-90 (unless otherwise specified in the case narrative)		

Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, $R = \text{constants} * f(x, y, z, \dots)$. The components (x, y, z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1.2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/\sqrt{n}), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation $(\text{Result}/\text{Expected}) - 1$ as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or STL Richland.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) u_c - Combined Uncertainty.	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, u_c the combined uncertainty. The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \text{Sqrt}(2 * (\text{BkgndCnt}/\text{BkgndCntMin}/\text{SCntMin})) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct}))$. For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \text{Sqrt}((\text{BkgndCnt}/\text{BkgndCntMin}/\text{SCntMin}) + 2.71/\text{SCntMin}) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct}))$. For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = $(S-D)/(\text{sqrt}(\text{TPUs}^2 + \text{TPUd}^2))$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary
STL Richland STLRL
 Ordered by Client Sample ID, Batch No.

Date: 01-Jun-07

Report No. : 35493

SDG No: W05178

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC/MDA	RPD
B1NHK1	JW9RA1AA	Ni-63	-3.47E-01 +- 2.60E+00	U	pCi/g	84%	3.60E+00	
B1NHK1 DUP	JW9RA1AC	Ni-63	7.74E-01 +- 2.28E+00	U	pCi/g	98%	3.06E+00	525.3
B1NHK2	JW9RT1AA	Ni-63	-9.51E-01 +- 2.10E+00	U	pCi/g	97%	2.95E+00	
B1NHK3	JW9RW1AA	Ni-63	2.51E+00 +- 2.50E+00	U	pCi/g	91%	3.44E+00	
B1NHK4	JW9RX1AA	Ni-63	5.14E-01 +- 2.51E+00	U	pCi/g	94%	3.40E+00	
B1NHK5	JW9R21AA	Ni-63	1.63E-01 +- 2.66E+00	U	pCi/g	95%	3.48E+00	
B1NHK6	JW9R61AA	Ni-63	7.00E-01 +- 2.51E+00	U	pCi/g	96%	3.39E+00	
B1NHL1	JW9R71AA	Ni-63	1.61E+00 +- 2.48E+00	U	pCi/g	97%	3.27E+00	
B1NHL2	JW9R91AA	Ni-63	1.01E+00 +- 2.51E+00	U	pCi/g	95%	3.37E+00	

Number of Results: 9

STL Richland
 rptSTLRechSaSum
 V5.1.2 A2002

RPD - Relative Percent Difference.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

QC Results Summary
STL Richland STLRL
 Ordered by QC Type, Batch No.

Date: 01-Jun-07

Report No. : 35493

SDG No.: W05178

QC Type	Work Order Number	Parameter	Result ± Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDC/JMDA
BLANK QC	JXAD01AA	NI-63	2.25E-01 ± 2.67E-01	U	pCi/g	96%			3.48E-01
LCS	JXAD01AC	NI-63	3.16E+01 ± 2.31E+00		pCi/g	93%	83%	-0.2	3.60E-01

Number of Results: 2

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.
 rptSTLRichQcSum U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by
 V5.1.2 A2002 gamma scan software.

FORM I

Date: 01-Jun-07

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W05178

Collection Date: 5/16/2007 8:14:00 AM

Lot-Sample No.: J7E180260-1

Report No.: 35493

Received Date: 5/18/2007 11:45:00 AM

Client Sample ID: B1NHK1

COC No.: R07-010-003

Matrix: SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
Batch: 7138456	Work Order: JW9RA1AA											
NI-63	-3.47E-01	U	1.5E+00	2.6E+00	3.60E+00	pCi/g	84%	-0.1	5/31/07 02:07 p	22.15	0.44194	NI63_LSC
						1.75E+00	3.00E+01	-0.27		G	G	LSC4

Number of Results: 1

Comments:

STL Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
rptSTLRchSample U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.
V5.1.2 A2002

FORM I

Date: 01-Jun-07

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W05178

Collection Date: 5/16/2007 8:50:00 AM

Lot-Sample No.: J7E180260-2

Report No.: 35493

Received Date: 5/18/2007 11:45:00 AM

Client Sample ID: B1NHK2

COC No.: R07-010-003

Matrix: SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert (2 s)	MDC/MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7138468	Work Order: JW9RT1AA				Report DB ID: 9JW9RT10							
NI-63	-9.51E-01	U	1.2E+00	2.1E+00	2.95E+00	pCi/g	97%	-0.32	5/31/07 05:31 p	23.04	0.48581	NI63_LSC
						1.43E+00	3.00E+01	-0.91		G	G	LSC4

Number of Results: 1

Comments:

STL Richland MDC/MDA, Lc - Detection, Decision Level based on Instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.
 V5.1.2 A2002

FORM I

Date: 01-Jun-07

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W05178

Collection Date: 5/16/2007 9:25:00 AM

Lot-Sample No.: J7E180260-3

Report No.: 35493

Received Date: 5/18/2007 11:45:00 AM

Client Sample ID: B1NHK3

COC No.: R07-010-003

Matrix: SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7138456	Work Order: JW9RW1AA				Report DB ID: 9JW9RW10							
NI-63	2.61E+00	U	1.4E+00	2.5E+00	3.44E+00	pCi/g	91%	0.73	5/31/07 07:14 p	22.64	0.45847	NI63_LSC
						1.67E+00	3.00E+01	(2.)		G	G	LSC4

Number of Results: 1

Comments:

STL Richland MDC|MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.
 V5.1.2 A2002

FORM I SAMPLE RESULTS

Date: 01-Jun-07

Lab Name: STL Richland

SDG: W05178

Collection Date: 5/18/2007 9:30:00 AM

Lot-Sample No.: J7E180260-4

Report No.: 35493

Received Date: 5/18/2007 11:45:00 AM

Client Sample ID: B1NHN4

COC No.: R07-010-003

Matrix: SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC(MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7138456	Work Order: JW9RX1AA				Report DB ID: 9JW9RX10							
Ni-63	5.14E-01	U	1.4E+00	2.5E+00	3.40E+00	pCi/g	94%	0.15	5/31/07 08:58 p	20.86	0.41778	Ni63_LSC
						1.65E+00	3.00E+01	0.41		G	G	LSC4

Number of Results: 1

Comments:

STL Richland MDC(MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.
 V5.1.2 A2002

FORM I

Date: 01-Jun-07

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W05178

Collection Date: 5/16/2007 10:58:00 AM

Lot-Sample No.: J7E180260-5

Report No.: 35493

Received Date: 5/18/2007 11:45:00 AM

Client Sample ID: B1NHK5

COC No.: R07-010-003

Matrix: SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC/MDA, Action Lev	Rpt Unit, Lo	Yield CRDL(RL)	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
Batch: 7138456	Work Order: JW9R21AA											
NI-63	1.63E-01	U	1.5E+00	2.5E+00	3.48E+00	pCi/g	95%	0.05	5/31/07 10:39 p	20.2	0.40344	NI63_LSC
						1.69E+00	3.00E+01	0.13		G	G	LSC4

Number of Results: 1

Comments:

STL Richland MDC/MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
rptSTLRchSample U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.
V5.1.2 A2002

FORM I

Date: 01-Jun-07

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W05178

Collection Date: 5/16/2007 11:12:00 AM

Lot-Sample No.: J7E180260-6

Report No.: 35493

Received Date: 5/18/2007 11:45:00 AM

Client Sample ID: B1NHK6

COC No.: R07-010-003

Matrix: SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC(MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rel/MDC, Rel/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7138466	Work Order: JW9R61AA				Report DB ID: 9JW9R610							
NI-63	7.00E-01	U	1.4E+00	2.5E+00	3.39E+00	pCi/g	98%	0.21	6/1/07 12:21 a	20.19	0.40986	NI63_LSC
						1.65E+00	3.00E+01	0.56		G	G	LSC4

Number of Results: 1

Comments:

STL Richland

MDC(MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

rpt(STLRch)Sample

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

V5.1.2 A2002

FORM I

Date: 01-Jun-07

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W05178

Collection Date: 5/16/2007 8:40:00 AM

Lot-Sample No.: J7E180260-7

Report No.: 35493

Received Date: 5/18/2007 11:45:00 AM

Client Sample ID: B1NHL1

COC No.: R07-010-003

Matrix: SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC/MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7138456	Work Order: JW9R71AA				Report DB ID: 9JW9R710							
NI-63	1.61E+00	U	1.4E+00	2.5E+00	3.27E+00	pCi/g	97%	0.49	6/1/07 02:03 a	21.12	0.422	N63_LSC
						1.59E+00	3.00E+01	(1.3)		G	G	LSC4

Number of Results: 1

Comments:

STL Richland MDC/MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTL.RchSample U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.
 V5.1.2 A2002

FORM I

Date: 01-Jun-07

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W05178

Collection Date: 5/16/2007 7:48:00 AM

Lot-Sample No.: J7E180260-8

Report No.: 35493

Received Date: 5/18/2007 11:45:00 AM

Client Sample ID: B1NHL2

COC No.: R07-010-003

Matrix: SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC/MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rel/MDC, Rel/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7138458	Work Order: JW9R91AA				Report DB ID: BJW9R910							
NI-63	1.01E+00	U	1.4E+00	2.5E+00	3.37E+00	pCi/g	95%	0.3	6/1/07 03:46 a	20.66	0.41508	NI63_LSC
						1.64E+00	3.00E+01	0.81		G	G	LSC4

Number of Results: 1

Comments:

STL Richland MDC/MDA, Lc - Detection, Decision Level based on Instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRichSample U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.
 V6.1.2 A2002

FORM II

Date: 01-Jun-07

DUPLICATE RESULTS

Lab Name: STL Richland

SDG: W05178

Collection Date: 5/16/2007 8:14:00 AM

Lot-Sample No.: J7E180280-1

Report No.: 35493

Received Date: 5/18/2007 11:45:00 AM

Client Sample ID: B1NHK1 DUP

COC No.: R07-010-003

Matrix: SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7138456	Work Order: JW9RA1AC				Report DB ID: JW9RA1CR			Orig Sa DB ID: 9JW9RA10				
NI-63	7.74E-01	U	1.3E+00	2.3E+00	3.06E+00	pCi/g	98%	0.25	5/31/07 03:49 p	22.15	0.44524	NI63_LSC
	-3.47E-01	U	RPD	525.3		3.00E+01		0.68		G	G	LSC4

Number of Results: 1

Comments:

STL Richland RPD - Relative Percent Difference.

rptSTLRichDupV5.1 MDC|MDA,Le - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

.2 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II
BLANK RESULTS

Date: 01-Jun-07

Lab Name: STL Richland

SDG: W05178

Lot-Sample No.: J7E180000-456

Report No.: 35493

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 7138456	Work Order: JXAD01AA											
Ni-63	2.25E-01	U	1.5E-01	2.7E-01	3.48E-01	pCi/g	96%	0.65	6/1/07 05:28 a		4.0	Ni63_LSC
					1.69E-01	3.00E+01		(1.7)			G	LSC4

Number of Results: 1

Comments:

STL Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
rptSTLRchBlank U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.
V6.1.2 A2002

FORM II
LCS RESULTS

Date: 01-Jun-07

Lab Name: STL Richland

SDG: W05178

Lot-Sample No.: J7E180000-456

Report No.: 35493

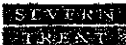
Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Allquot Size	Analv Method, Primary Detector
Batch: 7138456	Work Order: JXAD01AC		Report DB ID: JXAD01CS										
Ni-63	3.16E+01		5.1E-01	2.3E+00	3.60E-01	pCi/g	92.68%	9.80E+01	1.26E+00	83%	6/1/07 07:11 a	4.0	Ni63_LSC
Rec Limits:								70.	130.	-0.2		G	LSC4

Number of Results: 1

Comments:

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.
rptSTLRchLcs
V6.1.2 A2002

**STL****Data Review/Verification Checklist**
RADIOCHEMISTRY, First Level Review

6/1/2007 9:10:20 AM

Lot No., Due Date: J7E180260; 06/04/2007
Client, Site: 108302; FLUOR- SOILS Hanford Site
QC Batch No., Method Test: 7138456; RNI63 NI-63 by LSC
SDG, Matrix: W05178; SOIL

1.0 QC
1.1 Is the ICOC page complete; Includes all applicable analysis, dates, SOP numbers, and revisions?

Yes No N/A

2.0 QC Batch
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?

Yes No N/A

2.2 Are the QC appropriate for the analysis included in the batch?

Yes No N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?

Yes No N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample?

Yes No N/A

3.0 QC Samples
3.1 Is the blank results, yield, and MDA within contract limits?

Yes No N/A

3.2 Is the LCS result, yield, and MDA within contract limits?

Yes No N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits?

Yes No N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits?

Yes No N/A

3.5 Are the sample yields and MDAs within contract limits?

Yes No N/A

4.0 Raw Data
4.1 Were results calculated in the correct units?

Yes No N/A

4.2 Were analysis volumes entered correctly?

Yes No N/A

4.3 Were Yields entered correctly?

Yes No N/A

4.4 Were spectra reviewed/meet contractual requirements?

Yes No N/A

4.5 Were raw counts reviewed for anomalies?

Yes No N/A

5.0 Other
5.1 Are all nonconformances included and noted?

Yes No N/A

5.2 Are all required forms filled out?

Yes No N/A

5.3 Was the correct methodology used?

Yes No N/A

5.4 Was transcription checked?

Yes No N/A

5.5 Were all calculations checked at a minimum frequency?

Yes No N/A

5.6 Are worksheet entries complete and correct?

Yes No N/A

6.0 Comments on any No response:

First Level Review

Date

STL Richland

RAS-BADCALC-1.8.28

Page 1



STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

OC Batch Number:

7138456
W05178

Review Item	Yes (✓)	No (✓)	N/A (✓)
A. Sample Analysis			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other			
1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response:

Second Level Review:

Sheryl A. Adam

Date:

6-1-07
6-1-07

Fleet Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				R07-010-003		PAGE 1 OF 2	
COLLECTOR HOGAN, JG		COMPANY CONTACT KLAGES, DL		TELEPHONE NO. 373-6312		PROJECT COORDINATOR TRECHTER, JE		PRICE CODE 8C	
SAMPLING LOCATION 216-N-5		PROJECT DESIGNATION 200-CW-3 Operable Unit Trench Bottoms and Side Walls Analyses				SAF NO. R07-010		DATA TURNAROUND 15 Days / 15 Days	
ICE CHEST NO. 121405		FIELD LOGBOOK NO. MNF-N-507-3		COA 122333ES20		METHOD OF SHIPMENT GOVERNMENT VEHICLE		AIR QUALITY <input type="checkbox"/>	
SHIPPED TO Severn Trent Incorporated, Richmond.		OFFSITE PROPERTY NO. J7E180260				BILL OF LADING/AIR BILL NO. W05178 due 06 08 07			
MATRIX* OL = OTHER LIQUID OS = OTHER SOLID S = SOIL W = WATER		SPECIAL HANDLING AND/OR STORAGE			POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)				
SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS		PRESERVATION	
B1NHK1		S	5-16-07	0814	1X60mL G/P	Nickel-63;	JW9RA	22g	None
B1NHK2		S		0850	1X60mL G/P	Nickel-63;	JW9RT	25g	None
B1NHK3		S		0925	1X60mL G/P	Nickel-63;	JW9RW	26g	None
B1NHK4		S		0930	1X60mL G/P	Nickel-63;	JW9RX	23g	None
B1NHK5		S		1058	1X60mL G/P	Nickel-63;	JW9R2	23g	None
B1NHK6		S		1112	1X60mL G/P	Nickel-63;	JW9R6	23g	None
B1NHL1		S		0840	1X60mL G/P	Nickel-63;	JW9R7	21g	None
CHAIN OF POSSESSION			SIGN/ PRINT NAMES			SPECIAL INSTRUCTIONS			
RELINQUISHED BY/REMOVED FROM JG HOGAN			DATE/TIME 5-18-07 0930			RECEIVED BY/STORED IN R.T. SKIDLE			
RELINQUISHED BY/REMOVED FROM R.T. SKIDLE			DATE/TIME 5-18-07 1145			RECEIVED BY/STORED IN J. Ann H. S. Smith			
RELINQUISHED BY/REMOVED FROM			DATE/TIME			RECEIVED BY/STORED IN			
RELINQUISHED BY/REMOVED FROM			DATE/TIME			RECEIVED BY/STORED IN			
LABORATORY SECTION		RECEIVED BY		TITLE		DATE/TIME			
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME			

** Reporting format the same as GPP, including QC.
 ** STL is to send a copy of chain of custody (COC) to John Trechter within 24 hours of sample receipt and copy ^CPP Sample Management mailbox.
 ** STL will E-Mail results to John Trechter within 15 days of sample receipt, followed by a mailed hard copy.

STL Floor Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				R07-010-003		PAGE 2 OF 2	
COLLECTOR HOGAN, JG		COMPANY CONTACT KLAGES, DL		TELEPHONE NO. 373-6312		PROJECT COORDINATOR TRECHTER, JE		PRICE CODE 8C	
SAMPLING LOCATION 216-N-5		PROJECT DESIGNATION 200-CW-3 Operable Unit Trench Bottoms and Side Walls Analyses				SAF NO. R07-010		DATA TURNAROUND 15 Days / 15 Days	
ICE CHEST NO. 121405		FIELD LOGBOOK NO. HNF-N-507-3		COA 122333ES20		METHOD OF SHIPMENT GOVERNMENT VEHICLE		AIR QUALITY <input type="checkbox"/>	
SHIPPED TO Severn Trent Incorporated, Richland		OFFSITE PROPERTY NO. J7E180260				BILL OF LADING/AIR BILL NO. W05178 Due 06-08-07			
MATRIX* OL = OTHER LIQUID OS = OTHER SOLID S = SOIL W = WATER		SPECIAL HANDLING AND/OR STORAGE			POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)				
SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS			PRESERVATION
B1NHL2		S	5-16-07	0748	1X60mL G/P	Nickel-63; JW9R9			None
									20g
CHAIN OF POSSESSION					SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS		
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME		** Reporting format the same as GPP, including QC. ** STL is to send a copy of chain of custody (COC) to John Trechter within 24 hours of sample receipt and copy ^CPP Sample Management mailbox. ** STL will E-Mail results to John Trechter within 15 days of sample receipt, followed by a mailed hard copy.	
JG. HOGAN		5-18-07 09:30		R.T. SICHEL		5-18-07 09:30			
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME			
R.T. SICHEL		5-18-07 1145		A. Smith S. Smith		5-18-07 1145			
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME			
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME			
LABORATORY SECTION	RECEIVED BY					TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD					DISPOSED BY		DATE/TIME	



STL

Sample Check-in List

Date/Time Received: 05-18-07 11:45

Client: FLH SDG #: W05178 NA ☐ SAF #: R07-010 NA ☐

Work Order Number: J7E180260 Chain of Custody #: R07-010-003

Shipping Container ID: _____ Air Bill #: _____

1. Custody Seals on shipping container intact? NA ☐ Yes ☒ No ☐
2. Custody Seals dated and signed? NA ☐ Yes ☒ No ☐
3. Chain of Custody record present? Yes ☒ No ☐
4. Cooler temperature: _____ NA ☒ 5. Vermiculite/packing materials is NA ☒ Wet ☐ Dry ☐
6. Number of samples in shipping container: 8
7. Sample holding times exceeded? 8 x 60m NA ☒ Yes ☐ No ☐
8. Samples have:
_____ tape _____ hazard labels
_____ custody seals _____ appropriate samples labels
9. Samples are:
_____ in good condition _____ leaking
_____ broken _____ have air bubbles
(Only for samples requiring head space)
10. Sample pH taken? Soil NA ☒ pH < 2 ☐ pH > 2 ☐ pH > 9 ☐
11. Sample Location, Sample Collector Listed? * Yes ☒ No ☐
*For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes ☐ No ☒
13. Description of anomalies (include sample numbers): _____

Sample Custodian: J. Smith Date: 05

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____

☐ No action necessary; process as is.

Project Manager: _____ Date: _____

LS-023, 9/03, Rev. 5

6/1/2007 9:08:56 AM

ICOC Fraction Transfer/Status Report

ByDate: 6/1/2008, 6/6/2007, Batch: '7138456', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
7138456				
AC	CalcC	WoodT	5/24/2007 7:11:56	
SC		wagarr	IsBatched 5/18/2007 2:40:05 PM	ICOC_RADCALC v4.8.26
SC		WoodT	Prep1C 5/24/2007 7:11:56 AM	RICH-RC-5019 REVISION 5
SC		FABREM	InSep1 5/24/2007 9:45:37 AM	RICH-RC-5069 REVISION 5
SC		FABREM	Sep1C 5/30/2007 7:44:08 PM	RICH-RC-5069 REVISION 5
SC		DAWKINSO	InCnt1 5/30/2007 8:06:23 PM	RICH-RD-0001 REVISION 3
SC		BlackCL	CalcC 6/1/2007 8:10:01 AM	RICH-RD-0001 REVISION 3
AC		FABREM	5/24/2007 9:46:37	
AC		FABREM	5/30/2007 7:44:08 PM	
AC		DAWKINSO	5/30/2007 8:06:23 PM	
AC		BlackCL	6/1/2007 8:10:01 AM	

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa

STL RICHLAND